

REMARKS

Claims 1 to 26 and 77 to 82 are all the claims pending in the application, prior to the present Amendment.

Applicants have amended claims 1 and 3 and have added new dependent claim 83. Support for amended claim 1 is found in claim 13. Support for amended claims 3 is found in claim 82. Support for added claim 83 is found in claims 2 and 3. Applicants have canceled claims 6 to 10, 13, 14 and 82.

Claims 1-3, 12-14, 22 to 26, 77, 81 and 82 have been rejected under 35 U.S.C. § 102(b) as anticipated by under 35 U.S.C. § 102(b) as anticipated by U.S. 6,977,228 to Wakabayashi et al.

Applicants submit that Wakabayashi et al do not disclose or render obvious the presently claimed invention and, accordingly, request withdrawal of this rejection.

The present invention as set forth in claim 1 as amended above is directed to a curable composition comprising an organic polymer (A1) having one or more silicon-containing functional groups capable of cross-linking by forming siloxane bonds in which the one or more silicon-containing functional groups capable of cross-linking by forming siloxane bonds are silicon-containing functional groups each having three or more hydrolyzable groups on one or more silicon atoms thereof, wherein the silicon-containing functional groups are located at the terminals of the molecular chain of the organic polymer (A1); and a component which is selected from the group consisting of (a) a silicate (B), (b) a tin carboxylate (C1) in which the α -carbon of the carboxyl group is a quaternary carbon atom, and (c) a tin carboxylate (C) and an organotin catalyst (D), wherein the one or more silicon-containing functional groups capable of cross-linking by forming siloxane bonds each are a trimethoxysilyl group or a triethoxysilyl group.

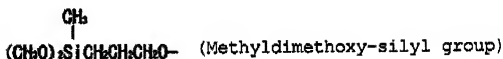
Thus, applicants have amended claim 1 to state that the one or more silicon-containing functional groups capable of cross-linking by forming siloxane bonds each are a trimethoxysilyl group or a triethoxysilyl group. Support for the amendment to claim 1 can be found in claim 13, which has now been canceled.

In the present invention, a cross-linked cured article of the curable composition obtained through the silanol condensation reaction involving the reactive silicon groups exhibits a satisfactory recovery properties, and also exhibits marked improvement effects on the creep resistance and the durability as compared to the case of a reactive silicon group-containing organic polymer in which each of the reactive silicon groups has two or less hydrolyzable groups. See the second paragraph at page 30 of the specification.

Further, since the silicon-containing functional groups are located at the terminals of the molecular chain of the organic polymer, the effective chain density in the organic polymer (A1) component contained in the finally formed cured article becomes large, so that it becomes easier to obtain a rubber-like cured article having a high strength, a high elongation property and a low elastic modulus. See page 32, last two lines to page 33, line 4 of the specification.

Therefore, the present invention employs a combination of an organic polymer (A1) having functional groups of a specific structure at the terminals of the molecular chain and a silicon compound having a specific structure to provide the abovementioned effect. Wakabayashi et al do not disclose or suggest this combination.

In Preparation Example 2 of Wakabayashi et al, to which the Examiner has referred, a curable composition is disclosed that comprises a polyoxypropylene base polymer having a molecular weight of about 8,200 and 1.7 groups of the formula:



per molecule on average, and a compound having trialkoxysilyl groups.

Moreover, Wakabayashi et al describe that alkyltrimethoxysilanes and alkyltriethoxysilanes are preferable as the silicon-containing compounds (C).

On the other hand, in Preparation Example 2 of Wakabayashi et al, an organic polymer having a trimethoxy-silyl group at the terminals of the molecular chain is not used, and silicate also is not used.

As mentioned above, in the present invention, since the curable composition comprising the organic polymer (A1) having functional groups of a specific structure at the terminals of the molecular chain and a silicon compound having a specific structure, a cross-linked cured article thereof exhibits marked improvement effects on the creep resistance and recovery properties, as compared to the case of the curable composition comprising a reactive silicon group-containing organic polymer in which each of the reactive silicon groups has two or less hydrolyzable groups.

These effects are not taught in Wakabayashi et al. Therefore, these effects of the present invention are unexpected.

In order to demonstrate the effect of the combination, applicants previously referred the Examiner to Tables 1 and 2 of the present specification and submitted a Declaration Under 37 C.F.R. § 1.132 in support of the patentability of the present invention.

With respect to claim 1, as discussed above, the present invention employs a combination of the organic polymer (A1) having functional groups of a specific structure at the terminals of the molecular chain and the silicon compound having a specific structure to provide the

unexpected effect. In order to demonstrate the effect of the combination, applicants previously submitted the above referred to Declaration.

In the present Office Action, the Examiner states that organic polymer (A1) having trialkoxysilane terminal groups are not required given the language of claim 1.

However, as discussed above, applicants have amended claim 1 to state that the organic polymer (A1) has a trimethoxysilyl group or a triethoxysilyl group. Accordingly, the combination set forth in present claims is a curable composition that provides the unexpected effect that is demonstrated in the specification and Declaration, since the organic polymer (A1) has a trimethoxysilyl group or a triethoxysilyl group

Therefore, applicants submit that amended claim 1 is not disclosed by and is unobviousness over Wakabayashi et al.

With respect to claim 2, it recites that the silicate (B) is a condensate of a tetraalkoxysilane.

In claim 2, since the curable composition comprises the organic polymer (A1) having a trimethoxysilyl group or a triethoxysilyl group, and the condensate of a tetraalkoxysilane, the curable composition provides an unexpected effect, that is, excellent recovery properties. This is clear from Example 10 of the present specification and Experiment No.3 in the previously submitted Declaration, each of which employed "methyl silicate 51," which is a condensate of tetramethoxysilane as disclosed at page 116, lines 7 to 10 of the present specification.

On the other hand, Wakabayashi et al do not teach or suggest a curable composition comprising a condensate of a tetraalkoxysilane.

Therefore, applicants submit that claim 2 is not disclosed by and is unobviousness over Wakabayashi et al.

With respect to claim 3, it recites that the component is a silicate (B) and further comprising a tin carboxylate (C) in which the α -carbon atom of the carboxyl group is a quaternary carbon atom.

In claim 3, since the curable composition comprising the organic polymer (A1) having a trimethoxysilyl group or a triethoxysilyl group, the silicate (B) and tin carboxylate (C) having a specific structure, the curable composition provides an unexpected effect, that is, excellent recovery properties. This is clear from Experiment No.4 in the previously submitted Declaration. On the other hand, Wakabayashi et al do not teach or suggest a curable composition comprising the above-mentioned tin carboxylate having a specific structure in which the α -carbon atom of the carboxyl group is a quaternary carbon atom.

Therefore, applicants submit that claim 3 is not disclosed by and is unobviousness over Wakabayashi et al.

With respect to claim 81, the curable composition provides the unexpected effect that is demonstrated in the Declaration, since the main chain skeleton of the organic polymer (A1) is a polyoxyalkylene polymer and the organic polymer (A1) has a trimethoxysilyl group or a triethoxysilyl group.

Therefore, applicants submit that claim 81 is not disclosed by and is unobviousness over Wakabayashi et al.

Further, applicants submit that claim 83 is not disclosed by and is unobviousness over Wakabayashi et al since it recites a component that is a condensate of a tetraalkoxysilane and further comprising a tin carboxylate (C).

In view of the above, applicants submit that Wakabayashi et al do not anticipate the present claims and, accordingly, request withdrawal of this rejection.

Claims 1, 12-14, 22-25, 81 and 82 have been rejected under 35 U.S.C. § 102(b) as anticipated by the newly cited U.S. 5,648,427 to Fujita et al.

Applicants submit that Fujita et al do not anticipate the present claims and, accordingly, request withdrawal of this rejection.

Fujita et al do not disclose any working example of a composition that satisfies the recitations of the present claims. The Examiner relies on Fujita et al for its disclosure of microballons to satisfy the component which is selected from (a) to (e) of the previously presented claim 1, with component (e) being a microballon. Applicants have amended claim 1 to state that the component is selected from (a) to (c).

In view of the above, applicants submit that Fujita et al do not anticipate the present claims and, accordingly, request withdrawal of this rejection.

Claims 1, 12-14, 22-26, 81 and 82 have been rejected under 35 U.S.C. § 102(b) as anticipated by over U.S. 6,207,766 to Doi et al.

Applicants submit that Doi et al do not anticipate the present claims and, accordingly, request withdrawal of this rejection.

Doi et al do not disclose any working example of a composition that satisfies the recitations of the present claims. The Examiner relies on Doi et al for its disclosure of a non-tin curing catalyst to satisfy the component which is selected from (a) to (e) of the previously presented claim 1, with component (d) being a non-tin curing catalyst (E). Applicants have amended claim 1 to state that the component is selected from (a) to (c).

In view of the above, applicants submit that Doi et al do not anticipate the present claims and, accordingly, request withdrawal of this rejection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

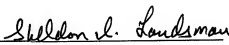
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